

METHOD FOR DETECTING NUCLEIC ACID SEQUENCES

ABSTRACT OF THE DISCLOSURE

A method for detecting nucleic acid sequences in two or more collections of nucleic acid
5 molecules, the method comprising:

(a) providing an array of modified polynucleotides bound to a solid surface, each said
modified polynucleotide comprising a determinable nucleic acid;

(b) contacting the array of modified polynucleotides with:

(i) a first collection of labeled nucleic acid comprising a sequence substantially
complementary to a nucleic acid of said array, and

(ii) at least a second collection of labeled nucleic acid comprising a sequence
substantially complementary to a modified polynucleotide of said array;

wherein the first and second labels are distinguishable from each other; and

(c) detecting hybridization of the first and second labeled complementary nucleic acids
to nucleic acids of said arrays;

wherein the modified oligonucleotides are characterized by a characteristic selected from
the group consisting of (a) a binding affinity of at least about 1.25 times that of a corresponding,
non-modified oligonucleotide, (b) a pH stability of at least one hour at 37 C at a pH in a range of
about 0.5 to 10; and (c) a nuclease resistance of at least twice that of a naturally occurring
20 oligonucleotide having the same sequence and number of bases.